

RTL500 Resistance Temperature Detector

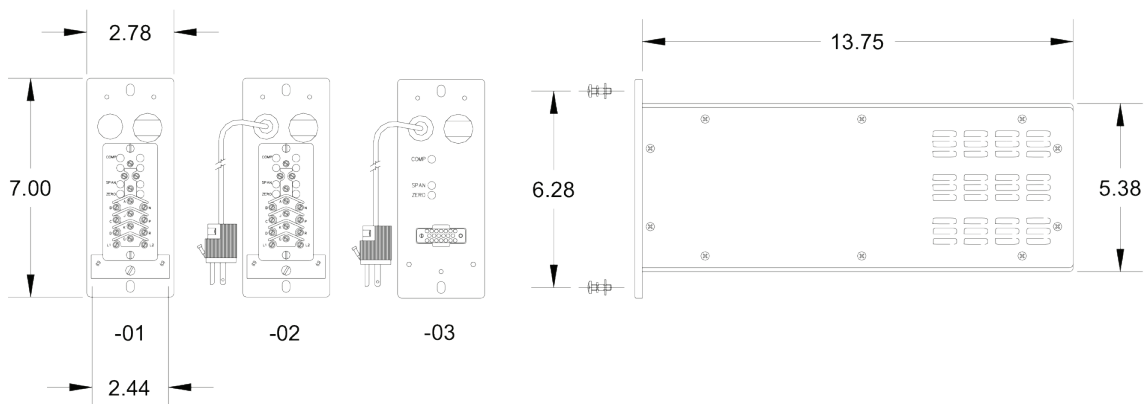
The RTL500 Resistance Temperature Detector (RTD), Thermocouple, Low Level Amplifier replaces the Foxboro 693A millivolt-to-current converter and the Foxboro 694A resistance-to-current converter. The RTL500 uses an accurate resistance-to-current (or voltage) converter that linearizes conversions for both platinum and nickel RTDs.

The converter PC board is the main signal board and hosts the "RTL Personality Module" (RPM), which sets the functional mode of operation to a 3- or 4-wire RTD mode, thermocouple mode, or low-level amplifier mode. RPM modules, which can be purchased separately, allow customers to stock one spare RTL module and different inter-changeable RPM modules to accommodate multiple operational modes and plant configuration applications.

The easy-to-change RPM, combined with switch (or jumper) selectable precision gains and offsets, allow the RTL500 to be reconfigured for large or small temperature/resistance ranges.



RTL500



"-01" = Terminal Block; "-02" = Terminal Block w/ Power Cord ; "-03" = M 20 Connector w/ Power Cord

SPECIFICATIONS

Power Supply Voltage:	85 to 132 Vac, 47 to 440 Hz or 110 to 170 Vdc
Power Consumption:	Less than 6 W, 15 VA (maximum)
Input Ranges:	100 Ω Platinum RTD: 99 to 225 Ω
	200 Ω Platinum RTD: 198 to 450 Ω
	100 Ω Nickel SAMA Type I RTD: 99 to 181 Ω
	Nickel SAMA Type II RTD: 234 to 435 Ω
	Exponential NR-226 ($^{\circ}$ F) or NR-227 ($^{\circ}$ C)
	Type J/E Thermocouple
	Type K/T Thermocouple
	Type R/S Thermocouple
	Low-Level Amplifier

NUSI 500 Series

RTD, Thermocouple, Low-level Amplifier

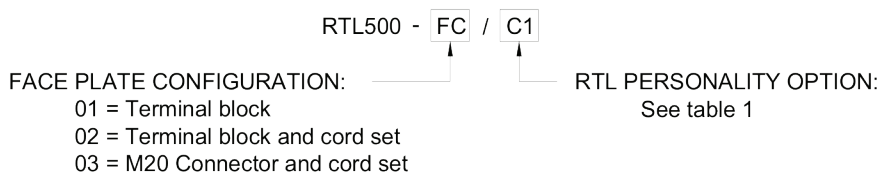
SPECIFICATIONS - continued

Minimum span:	Approximately 20 Ω
Adjustable from front:	Zero, Span, and Linearity Compensation
Internal calibrations:	Offset and Gain (one time only for each range)
Output Ranges:	10 to 50 mA into 600 Ω maximum; 4 to 20 mA into 1000 Ω maximum
	2 to 10 V into 2 kΩ minimum; 0 to 10 V into 2 kΩ minimum
	(Extended voltage ranges available as factory installed options)
Accuracy:	0.5% of output span
Repeatability:	0.1% of output span
Time Response:	50 ms maximum from application of a step input to when the output reaches 63% of its nominal value. All filters bypassed
Surge Withstand:	No damage when the waveform of IEEE 472-1974 is applied in common or transverse mode to the output or power ports. No protection on the input port
Electrical Qualification:	Plant protection, qualified to IEEE 323-1974/1983 and IEEE 344-1975/1987
Ambient Temperature:	35 °F to 122 °F (2 °C to 50 °C) (normal operation)
	122 °F to 135 °F (50 °C to 57 °C) (abnormal operation for 200 hours)
	-40 °F to 185 °F (-40 °C to 85 °C) (storage)
Temperature Effects:	For each input with a span greater than 20 mV, less than 0.03% change in output span for each 1 °F change in ambient temperature (0.054% per 1 °C change)
	For each input with a span less than 20 mV; less than 0.033% change in output span for each 1 °F change in ambient temperature (0.059% per 1 °C change)
Relative Humidity:	0% RH to 95% RH, non-condensing
Pressure:	Atmospheric
Radiation Limits:	104 rad TID gamma

HOW TO ORDER

The model number and configuration typically should be specified as follows:

Example: RTL500-03/1



Code	Personality Option
1	Low Level Amplifier
2	Configuration Module – RTD500 Equivalent
3	Configuration Module – 3 Wire RTD
4	Configuration Module – 4 Wire RTD
5	Configuration Module – T/C (J, E)
6	Configuration Module – T/C (K, T)
7	Configuration Module – T/C (R, S)
8	Reserved for future use
9	Reserved for future use
10	User Installed RPM (order separately)
13	Configuration Module – 3 Wire RTD where plant is wired for a Dual Current source and millivolt converter
CUSTOM	Special features available upon request

CONTACT INFORMATION:

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